In the Claims:

1. (withdrawn) Thermosensitive polymers containing at least one of magnetic or metallic colloids, wherein said polymers are produced by inverse suspension polymerization and have a physical structure changeable by magnetic induction.

2. (withdrawn) The thermosensitive polymers according to Claim 1, wherein the polymers comprise at least one compound selected from the group consisting of poly-N-isopropylacrylamide, poly-N-substituted acrylamides, poly-N-substituted methacrylamides, and copolymers of monomers from the group consisting of N-isopropylacrylamide, N-substituted acrylamides and N-substituted methacrylamides.

3. (withdrawn) The thermosensitive polymers according to Claim 2, wherein the polymers contain at least one copolymer or block copolymer which contain at least one comonomer selected from the group of monomers containing carboxyl groups consisting of acrylic acid and methacrylic acid, or from the group consisting of acrylates, acrylate derivatives, methacrylates, methacrylate derivatives, acrolein, acrylamide, N-substituted acrylamides and vinyl acetate.

4. (withdrawn) The thermosensitive polymers according to claim 2, wherein the polymers contain at least one copolymer or block copolymer selected from the group consisting of polyacrylic acid, polyacrolein, polymethacrylic acid, polyacrylamide and N-substituted polyacrylamides.

5. (withdrawn) The thermosensitive polymers according to claim 1, wherein the polymers

are selected from the group consisting of nano-particles and microparticles.

6. (withdrawn) The thermosensitive polymers according to Claim 1, wherein said magnetic induction is a high-frequency, magnetic alternating field.

7. (withdrawn) The thermosensitive polymers according to Claim 1, wherein the change in the physical structure is a change to the geometric form of the polymers.

8. (withdrawn) The thermosensitive polymers according to Claim 7, wherein the change in the geometric form is a return to the original form displayed by the polymers before a change in form caused by heat.

9. (withdrawn) The thermosensitive polymers according to Claim 1, wherein the change in the physical structure is an enlargement or reduction in the size of the polymer particles.

10. (withdrawn) The thermosensitive polymers according to claim 1, wherein the magnetic colloids comprise a material selected from the group consisting of ferromagnetic particles, superparamagnetic particles, ferrimagnetic particles, low-temperature-ferrites and a ferrofluid with a particle size of <1 μm.

11. (withdrawn) The thermosensitive polymers according to Claim 10, wherein the low-temperature-ferrites have a Curie temperature in the range of 30°C to 100°C.

12. (withdrawn) The thermosensitive polymers according to claim 1, wherein the metallic colloids comprise an element selected from the group consisting of 8, 9, 10 and 11 of the 1986 IUPAC definition.

13. (withdrawn) The thermosensitive polymers according to claim 1, wherein a core polymer encapsulates the magnetic or metallic colloids.

14. (withdrawn) The thermosensitive polymers according to Claim 13, wherein the core polymer has a particle size of 50 to 1000 nm.

15. (withdrawn) The thermosensitive polymers according to claim 14, wherein said magnetic or metallic colloids encapsulated in the core polymer are in a disperse colloid form.

16. (withdrawn) The thermosensitive polymers according to claim 13, wherein the encapsulating core polymer is selected from the group consisting of chitosan, dextran, starch, polyacrylic acid, polysaccharides, silica gel, silicone derivatives, cellulose, proteins, albumin, polyacrylic acids, agarose, alginate, polystyrene, polyacrylates, polymethacrylates, polycyanoacrylates, polymethyl methacrylate, polyvinyl alcohol, polyamides, polyesters, polyamino acids, hyaluronic acid, polylactides, polyglycolides, polyacrolein and copolymers of the same.

17. (withdrawn) The thermosensitive polymers according to claim 1, wherein the polymers contain a porogen in an amount of 0.1-30 % by weight.

18. (withdrawn) The thermosensitive polymers according to Claim 17, wherein the porogen is selected from the group consisting of silica gels, proteins, nucleic acids, polyethylene glycols, polyethylene oxides and polysaccharides.

19. (withdrawn) The thermosensitive polymers according to claim 1, wherein the polymers are cross-linked with a bi- or tri-functional cross-linking agent.

20. (withdrawn) The thermosensitive polymers according to Claim 19, wherein the cross-linking agent has a concentration of 0.1% to 10% relative to the overall monomer content.

21. (withdrawn) The thermosensitive polymers according to claim 1, wherein the

polymers further contain reactive groups that bond biomolecules.

22. (withdrawn) The thermosensitive polymers according to Claim 21, wherein the bonding groups are reacted with a compound selected from the group consisting of affinity ligands, peptides, proteins, antibodies, antigens, enzymes, cell receptor antibodies, antibodies against tumor markers, antibody fragments, artificially produced antibodies, modified antibodies, antibody conjugates, oligosaccharides, glycoproteins, lectins, nucleic acids, streptavidin and biotin.

23. (withdrawn) The thermosensitive polymers according to claim 1, wherein the polymers further contain at least one encapsulated active agent releasable from the polymer into the environment by exposure to a magnetic field.

24. (withdrawn) The thermosensitive polymers according to Claim 23, wherein the at least one encapsulated active agent is selected from the group consisting of hormones, cytostatic agents, antibodies, antibody derivatives, antibody fragments, cytokines, immunomodulators, antigens, proteins, peptides, lectins, glycoproteins, nucleic acids, antisense-nucleic acids, oligosaccharides, antibiotics and generic agents.

25. (currently amended) A process for the production of thermosensitive polymers ~~in accordance with claim 1~~ containing at least one of magnetic or metallic colloids and having a physical structure changeable by magnetic induction, said process comprising the steps of:

dispersing at least one of magnetic or metallic colloids in an aqueous monomer solution;

suspending said aqueous monomer solution through mechanical comminution in

an organic phase that is not miscible with water after adding a multifunctional cross-linking agent and a radical initiator and;

radically polymerizing said organic phase to nano- or ~~microparticles~~ micro-particles.

26. (currently amended) A process for the production of thermosensitive polymers in ~~accordance with claim 1~~ containing at least one of magnetic or metallic colloids and having a physical structure changeable by magnetic induction, said process comprising the steps of:

dispersing at least one of magnetic or metallic colloids in an aqueous monomer solution;

suspending said aqueous monomer solution through mechanical comminution in an organic phase that is not miscible with water after adding a multifunctional cross-linking agent; and

adding a radical initiator to radically polymerize said organic phase to ~~nano or microparticles~~ nano- or micro- particles during the suspension process.

27. (currently amended) The process for the production of the thermosensitive polymers according to Claim 25, wherein said aqueous monomer solution comprises at least one monomer selected from the group consisting of N-isopropylacrylamide, N-substituted acrylamides, and N-substituted methacrylamides.

28. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the step of adding ~~0.05 to 30 % by mol~~ co-monomers to the monomer solution to obtain resulting copolymers, the co-monomer

content of the resulting copolymers being between 0.05 and 30% by mol.

29. (currently amended) The process for the production of the thermosensitive polymers according to Claim 28, wherein the co-monomers are at least one compound selected from the group consisting of acrylate derivatives, methacrylate derivatives, acrylic acid, acrolein, methacrylic acid, acrylamide, and vinyl acetate.

30. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the step of adding a material selected from the group consisting of ferromagnetic, superparamagnetic or ferrimagnetic substances, low-temperature ferrites and ferrofluids with a particle size of <1 μm to the monomer solution.

31. (currently amended) The process for the production of the thermosensitive polymers according to claim 30, wherein the ferromagnetic, superparamagnetic or ferrimagnetic substances or low-temperature ferrites are present as colloids or in a powder form.

32. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the steps of:

dispersively encapsulating said at least one magnetic or metallic colloids in a ~~nano or microparticle~~ nano- or micro- particle core ~~polyer~~ polymer; and

adding said encapsulation to the monomer solution.

33. (currently amended) The process for the production of the thermosensitive polymers according to Claim 32, wherein the core polymer comprises a compound selected from the group consisting of chitosan, dextran, starch, polyacrylic acid, polysaccharides, silica gel, silicone derivatives, cellulose, proteins, albumin, polyacrylic acid, agarose, alginate,

polystyrene, polyacrylates, polymethacrylates, polycyanoacrylates, polymethyl methacrylate, polyvinyl alcohol, polyamino acids, hyaluronic acid, polylactides, polyglycolides, polyacrolein and copolymers of the same.

34. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, wherein solvents are used as the organic phase and have a polar solubility parameter of 5-10 $(cal/cm^3)^{1/2}$.

35. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the step of adding at least one surfactive substance to the organic phase at 0.05 to 15 % by weight.

36. (currently amended) The process for the production of the thermosensitive polymers according to Claim 35, wherein the surface active substance is at least one compound selected from the group consisting of alkyl sulphosuccinates, polyoxyethylene aryl ethers, polyoxyethylenes, polyoxyethylene sorbitan esters, polyoxyethylene adducts, polyethylene propylene oxide block copolymers, alkylphenoxy polyethoxy ethanols, fatty alcohol polyethylene glycol ethers, polyglycerol esters, polyoxyethylene alcohols, polyoxyethylene sorbitan fatty acid esters, and polyoxyethylene acids.

37. (currently amended) The process for the production of the thermosensitive polymers ~~in~~ according to Claim 25, and further comprising the step of pre-polymerizing the monomer solution for 5-120 seconds before dispersion in the organic phase.

38. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the step of bonding a compound selected from the group consisting of affinity ligands, peptides, proteins, antibodies, antigens,

enzymes, cell receptor antibodies, antibodies against tumor markers, antibodies against tumor antigens, antibody fragments, artificially produced antibodies, modified antibodies, antibody conjugates, oligosaccharides, glycoproteins, lectins, nucleic acid, streptavidin and biotin to the polymers.

39. (currently amended) The process for the production of the thermosensitive polymers according to claim 25, and further comprising the step of encapsulating the active agents in the polymers by adding the active agent(s) to a monomer solution containing at least one of magnetic or metallic colloids.

40. (currently amended) The process for the production of the thermosensitive polymers according to Claim 39, wherein the active agents are selected from the group consisting of hormones, cytostatic agents, antibodies, cytokines, immunomodulators, antigens, proteins, peptides, lectins, glycoproteins, nucleic acids, antisense-nucleic acids, oligosaccharides, antibiotics and generic agents.

41. (currently amended) The process for the production of the thermosensitive polymers according to claim 40, and further comprising the step of adding a compound selected from the group consisting of polyvalent alcohols, polyvinyl alcohols, gelatins and carbohydrates to the active agents in an amount of 0.1 to 20% by weight.

42. (currently amended) The process for the production of the thermosensitive polymers according to Claim 41, wherein the polyvalent alcohols or carbohydrates are selected from the group consisting of inosite, mannite, sorbite, aldonite, erythrite, sucrose, glycerine, xylite, fructose, glucose, galactose and maltose.

43. (withdrawn, currently amended) A process for the release of active agents from active

agent-containing particles, wherein the particles of the thermosensitive polymers according to claim 1 or particles which have been produced according to a process of claim 25 comprising the step of introducing said particles into a magnetic alternating field for magnetic induction.

44. (withdrawn, currently amended) A process for changing the physical structure of the thermosensitive polymers containing at least one of magnetic or metallic colloids, or for warming or heating said polymers, comprising the step of introducing said polymers into a magnetic alternating field for magnetic induction.

45. (canceled)

46. (withdrawn) The process according to claim 43, wherein said magnetic alternating field is a high-frequency magnetic alternating field.

47. (withdrawn) The process according to claim 44, wherein said magnetic alternating field is a high-frequency magnetic alternating field.

48. (currently amended) The process for the production of the thermosensitive polymers according to Claim 26, wherein said aqueous monomer solution comprises at least one monomer selected from the group consisting of N-isopropylacrylamide, N-substituted acrylamides, and N-substituted methacrylamides.

49. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, and further comprising the step of adding ~~0.05 to 30 % by mol~~ co-monomers to the monomer solution to obtain resulting copolymers, the co-monomer content of the resulting copolymers being between 0.05 and 30% by mol.

50. (currently amended) The process for the production of the thermosensitive polymers

according to Claim 49, wherein the co-monomers are at least one compound selected from the group consisting of acrylate derivatives, methacrylate derivatives, acrylic acid, acrolein, methacrylic acid, acrylamide, and vinyl acetate.

51. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, and further comprising the step of adding a material selected from the group consisting of ferromagnetic, superparamagnetic or ferrimagnetic substances, low-temperature ferrites and ferrofluids with a particle size of <1 μm to the monomer solution.

52. (currently amended) The process for the production of the thermosensitive polymers according to claim 51, wherein the ferromagnetic, superparamagnetic or ferrimagnetic substances or low-temperature ferrites are present as colloids or in a powder form.

53. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, and further comprising the steps of:

dispersively encapsulating said at least one magnetic or metallic colloids in a ~~nano or microparticle~~ nano- or micro- particle core ~~polyer~~ polymer; and

adding said encapsulation to the monomer solution.

54. (currently amended) The process for the production of the thermosensitive polymers according to Claim 53, wherein the core polymer comprises a compound selected from the group consisting of chitosan, dextran, starch, polyacrylic acid, polysaccharides, silica gel, silicone derivatives, cellulose, proteins, albumin, polyacrylic acid, agarose, alginate, polystyrene, polyacrylates, polymethacrylates, polycyanoacrylates, polymethyl methacrylate, polyvinyl alcohol, polyamino acids, hyaluronic acid, polylactides,

polyglycolides, polyacrolein and copolymers of the same.

55. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, wherein solvents are used as the organic phase and have a polar solubility parameter of 5-10 $(cal/cm^3)^{1/2}$.

56. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, and further comprising the step of adding at least one surfactive substance to the organic phase at 0.05 to 15 % by weight.

57. (currently amended) The process for the production of the thermosensitive polymers according to Claim 56, wherein the surface active substance is at least one compound selected from the group consisting of alkyl sulphosuccinates, polyoxyethylene aryl ethers, polyoxyethylenes, polyoxyethylene sorbitan esters, polyoxyethylene adducts, polyethylene propylene oxide block copolymers, alkylphenoxy polyethoxy ethanols, fatty alcohol polyethylene glycol ethers, polyglycerol esters, polyoxyethylene alcohols, polyoxyethylene sorbitan fatty acid esters, and polyoxyethylene acids.

58. (currently amended) The process for the production of the thermosensitive polymers according to claim 26, and further comprising the step of bonding a compound selected from the group consisting of affinity ligands, peptides, proteins, antibodies, antigens, enzymes, cell receptor antibodies, antibodies against tumor markers, antibodies against tumor antigens, antibody fragments, artificially produced antibodies, modified antibodies, antibody conjugates, oligosaccharides, glycoproteins, lectins, nucleic acid, streptavidin and biotin to the polymers.

59. (currently amended) The process for the production of the thermosensitive polymers

according to claim 26, and further comprising the step of encapsulating the active agents in the polymers by adding the active agent(s) to a monomer solution containing at least one of magnetic or metallic colloids.

60. (currently amended) The process for the production of the thermosensitive polymers according to Claim 59, wherein the active agents are selected from the group consisting of hormones, cytostatic agents, antibodies, cytokines, immunomodulators, antigens, proteins, peptides, lectins, glycoproteins, nucleic acids, antisense-nucleic acids, oligosaccharides, antibiotics and generic agents.

61. (currently amended) The process for the production of the thermosensitive polymers according to claim 60, and further comprising the step of adding a compound selected from the group consisting of polyvalent alcohols, polyvinyl alcohols, gelatins and carbohydrates to the active agents in an amount of 0.1 to 20% by weight.

62. (currently amended) The process for the production of the thermosensitive polymers according to Claim 61, wherein the polyvalent alcohols or carbohydrates are selected from the group consisting of inosite, mannite, sorbite, aldonite, erythrite, sucrose, glycerine, xylite, fructose, glucose, galactose and maltose.

63. (withdrawn) A process for the release of active agents from active agent-containing particles, wherein the particles of thermosensitive polymers according to claim 1 or particles which have been produced according to a process of claim 26 comprising the step of introducing said particles into a magnetic alternating field for magnetic induction.

64. (withdrawn) The process according to claim 63, wherein said magnetic alternating field is a high-frequency magnetic alternating field.

65. (withdrawn) The use of thermosensitive polymers containing at least one of magnetic or metallic colloids according to claim 1 or of particles produced by a process according to claim 26 as a contrast-intensifying media in NMR diagnostics, as carriers for active agents in medical therapy and diagnostics, as controllable carriers for reactants, as media to control microfluid processes, as separation media in column chromatography, as media to adjust and regulate pore sizes in membranes, as media to block blood vessels, as artificial cell carriers, as separation media for nucleic acids, cells, proteins, steroids, viruses or bacteria, in each case by using a magnetic alternating field, preferably a high-frequency magnetic alternating field.